**U101 ESP32-S3-WROOM-1**

| Pin | Signal |
|---|---|
| 3 | EN |
| 27 | IO0 |
| 39 | IO1 |
| 38 | IO2 |
| 15 | IO3 |
| 4 | IO4 (hiON) |
| 5 | IO5 (loON) |
| 6 | IO6 (lo1ON) |
| 7 | IO7 (lo2ON) |
| 12 | IO8 |
| 18 | IO9 |
| 19 | IO10 |
| 20 | IO11 |
| 21 | IO12 |
| 22 | IO13 |
| 8 | IO14 |
| 9 | IO15 |
| | IO16 |

TXD0 37 gnssRx
RXD0 36 gnssTx
IO17 10
IO18 11
USB_D- 13 D-
USB_D+ 14 D+
IO21 23
IO35 28
IO36 29
IO37 30
IO38 31
IO39 32
IO40 33
IO41 34
IO42 35
IO45 26
IO46 16
IO47 24 gnssNRESET
IO48 25 — R103 10k — gnssPPS

GND 1

fpgaNRESET 17
fpgaDONE 18
fpgaMOSI 19
fpgaSCLK 20
fpgaMISO 21
fpgaNCS 22

C102 0.1uF
C103 22uF
+3.3V

**Power / Reset section**
VBUS
R101 100k
Q101 2N7002
+3.3V
R102 100k
C101 100nF

**U103 ATGM336H-5N31**
+3.3V +BATT
C104 10uF
8 VCC
6 V_BCKP
VCC_RF 14
RF_IN 11
3 RXD gnssRx
2 TXD gnssTx
16 SDA
17 SCL
9 RESET gnssNRESET
5 ON_OFF
PPS 4 gnssPPS
GND 1 10 12
L101 47nH
100pF NP0 C107
J101 GNSS Ant

+BATT
BT101 CR1220

**J103 USB-C**
VBUS
A5 CC1
A6 D+
A7 D-
B5 CC2
A8 SBU1 SH
B8 SBU2 GND
A4 VBUS
A1 GND
S1
D+
D-
R104 5.1k
R105 5.1k
VBUS
C108 100nF
C109 10uF
C110 100uF

**Transmitter**
fpgaNRESET
fpgaDONE
fpgaMOSI
fpgaSCLK
fpgaMISO
fpgaNCS
txOut

**Low Pass Filters**
hiON hbON
lo1ON lo1ON
lo2ON lo2ON
loON loON
RFin
RFout
J102 Tx Ant

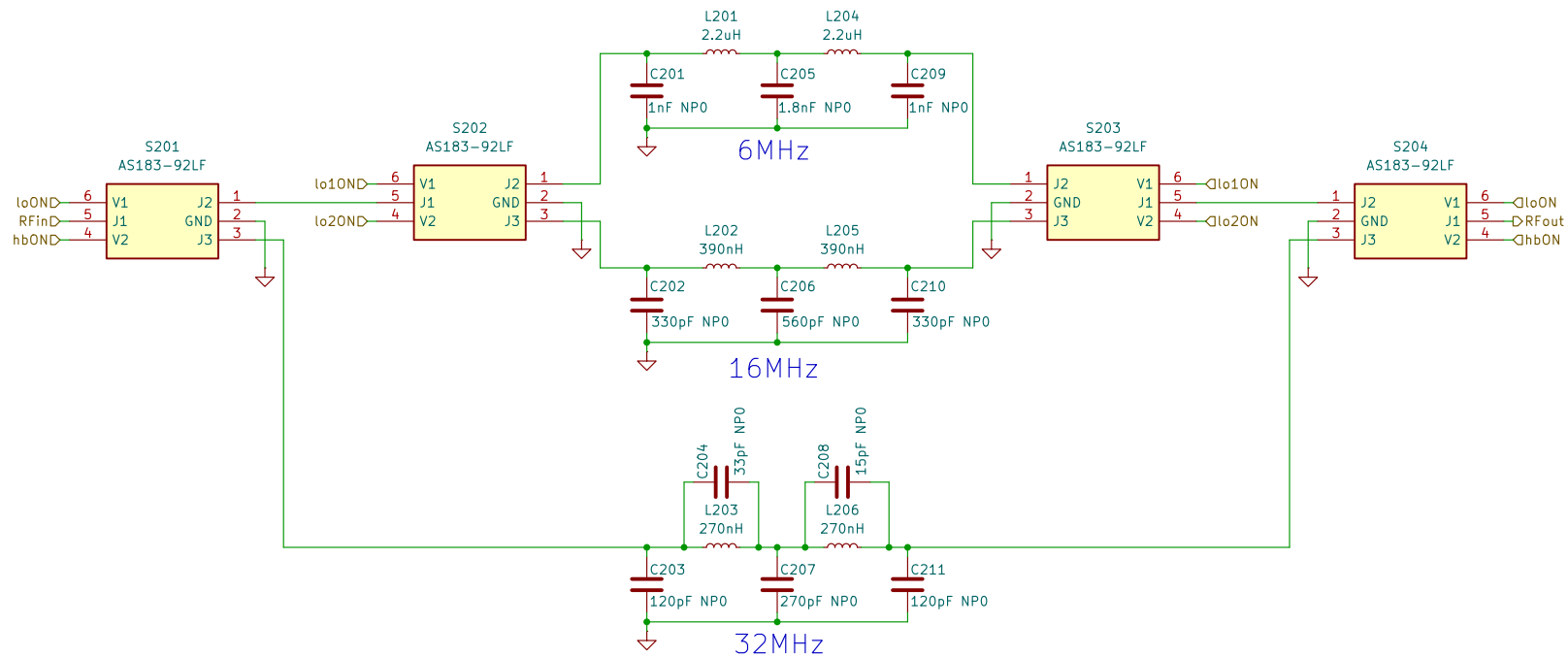**U102 NCP1117-3.3_SOT223**
VBUS
3 VI
VO 2
GND 1
+3.3V
C105 10uF
C106 10uF

WB7NAB
Sheet: /
File: WSPR-ease.kicad_sch
Title: WSPR Ease
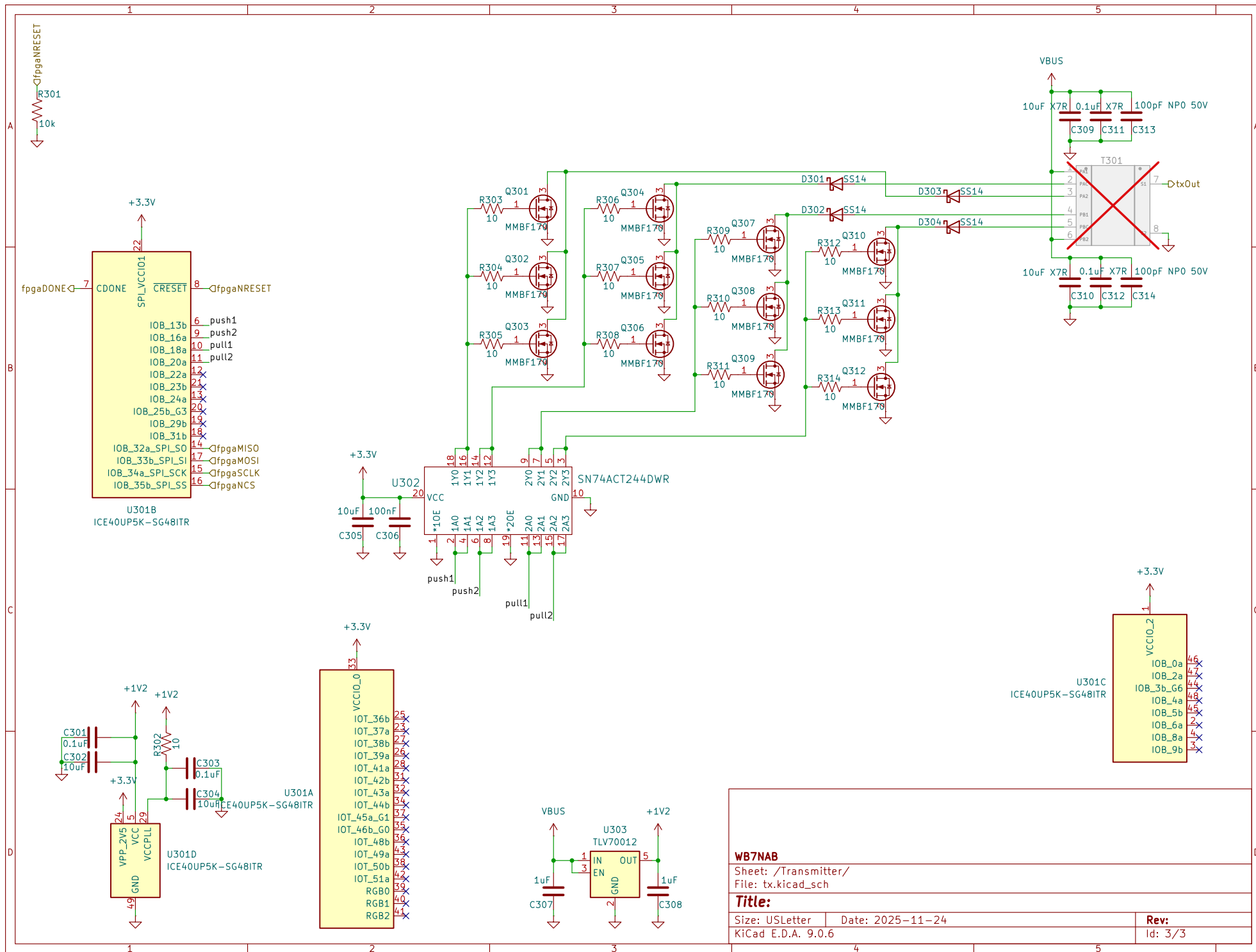Size: USLetter    Date: 2025-11-24    Rev:
KiCad E.D.A. 9.0.6    Id: 1/3

# S201
## AS183-92LF

| | | |
|---|---|---|
| 6 | V1 | J2 | 1 |
| 5 | J1 | GND | 2 |
| 4 | V2 | J3 | 3 |

loON
RFin
hbON

# S202
## AS183-92LF

lo1ON
lo2ON

| | | |
|---|---|---|
| 6 | V1 | J2 | 1 |
| 5 | J1 | GND | 2 |
| 4 | V2 | J3 | 3 |

L201 2.2uH   L204 2.2uH
C201 1nF NP0   C205 1.8nF NP0   C209 1nF NP0

**6MHz**

L202 390nH   L205 390nH
C202 330pF NP0   C206 560pF NP0   C210 330pF NP0

**16MHz**

# S203
## AS183-92LF

| | | |
|---|---|---|
| 1 | J2 | V1 | 6 |
| 2 | GND | J1 | 5 |
| 3 | J3 | V2 | 4 |

lo1ON
lo2ON

# S204
## AS183-92LF

| | | |
|---|---|---|
| 1 | J2 | V1 | 6 |
| 2 | GND | J1 | 5 |
| 3 | J3 | V2 | 4 |

loON
RFout
hbON

C204 33pF NP0   C208 15pF NP0
L203 270nH   L206 270nH
C203 120pF NP0   C207 270pF NP0   C211 120pF NP0

**32MHz**

WB7NAB
Sheet: /Low Pass Filters/
File: LPFs.kicad_sch
**Title: Low Pass Filters**
Size: USLetter | Date: 2025-11-24 | Rev:
KiCad E.D.A. 9.0.6 | Id: 2/3

# WB7NAB

Sheet: /Transmitter/
File: tx.kicad_sch

Title:

| Size: USLetter | Date: 2025-11-24 | Rev: |
| KiCad E.D.A. 9.0.6 | | Id: 3/3 |